GEOGRAPHIC SCHOOL BULLETINS

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From New Zealand Flax, Deft Maori Fingers Fashion Baskets—Sharing the carved porch of this meetinghouse near Rotorua, a Polynesian idol looks down on the women's work. Maoris in outrigger canoes migrated centuries ago to the down-under Dominion.

(SEE PAGE 71)

HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

Half that huge sum paid for blasting, filling, grading, bridging, and tunneling the railroad north from Seven Islands (Sept Isles) at the mouth of the St. Lawrence River, and for a rolling stock of 49 Diesel locomotives and 2,000 all-roller-bearing ore cars.

More of the money built a hydroelectric power station near each end of the rail line and started the 300-year-old fishing village of Seven Islands on its way to becoming a port capable of handling 20,000,000 tons of ore a season. Other millions bulldozed 250 miles of roads connecting scattered ore deposits with the railhead and developed Schefferville (formerly Knob Lake village) into the ore fields' center of mining.

Geologists discovered the rich ore source in 1893. But its remoteness was a great obstacle, and as northern Minnesota's Mesabi Range began its enormous production with the automobile age, the deposit on the edge of Quebec's Ungava district got little consideration as a workable mine. The very meaning of the Indian name Ungava is "faraway place."

Even by late World War II, steel men felt no great urgency in supplementing Mesabi ore. Steel demand steadily increased, however. Survey of the Quebec-Labrador range showed it totaled perhaps two billion tons of ore in an area twice the size of Massachusetts, with at least one fourth of it averaging 60 per cent iron.

Largest Civilian Airlift—Work started in earnest in October, 1950. At the height of railroad building, 4,000 men and hundreds of machines pushed the roadbed northward two miles a day. It was North America's biggest railway project since the last of the western lines pushed across the Rocky Mountains 50 years ago.

The largest civilian airlift ever organized did its share. Seventy-five pilots kept a fleet of stripped-down work planes, mostly DC-3's, flying on 24-hour schedule to 14 wilderness runways. In 1953 alone they logged 57,000 hours aloft and delivered 41,000 tons of cargo.

Schefferville, northern railhead, already counts a thousand people in its private homes, workers' dormitories, and staff houses. It will grow to a balanced community of 2,000 with schools, stores, and a hospital. Its big rail yard is designed for the endless job of receiving empty 100-car trains and sending them off loaded with ore.

Seven Islands, 300 years old in 1953, has tripled its 1,400 population of five years ago and will grow to 10,000 as annual ore transshipments move well above the 10,000,000-ton-mark. Its new loading docks accommodate two big ore ships at a time. Beside them a terminal yard with 40 miles of track covers nearly a square mile. It has shops to repair and service the railway's rolling stock.

Docks Ice-free Through November—Stockpiling is an important feature of the Seven Islands facilities. Inland at the ore fields, 2,000 feet above sea level, climate limits strip mining to the period from mid-May to late October. At Seven Islands ships operate from March to November.

References—Labrador is shown on the National Geographic Society's map of Canada, Alaska & Greenland. Write the Society, Washington 6, D. C., for a map price list.

See "Labrador Canoe Adventure," *National Geographic Magazine*, July, 1951; "Sea to Lakes on the St. Lawrence," Sept., 1950; "Quebec's Forests, Farms, and Frontiers," Oct., 1949; "Newfoundland, Canada's New Province," June, 1949. *School and library discount price for Magazine issues a year old or less, 50¢; through 1946, 65¢. Write for prices of earlier issues.*

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"The Land God Gave Cain"—Ungava-Labrador has lived down its misleading label by giving North America its most extensive iron-ore reserve. This was Burnt Creek, the base camp in the wilds from which grew a mining empire, eastern Canada's northernmost inland city (Schefferville), and the continent's newest railroad.

New Railroad Taps Quebec-Labrador Iron

To Cleveland school children in September came an exciting present. Some 500 boxes filled with lumpy red earth told them a story that will affect their standard of living for the rest of their lives.

The strange earth was high-grade iron ore, basis of North America's industrial wealth, and it came from a vast deposit in the remote subarctic wilderness of the Quebec-Labrador border. How it reached Cleveland was a wonder in itself. The first quarter of its journey took it over a 360-mile heavy-duty railroad that hadn't even been started four years before. The rest of the way was by shallow-draft vessel through the St. Lawrence-Great Lakes route.

Quarter-billion and Faith—The very first shipments of the ore had reached Philadelphia and Baltimore docks in August en route to steel mills. But before a single ton could be moved, men of courage and great faith in the remote reserve had to raise and spend $250,000,000.

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Chartres Cathedral Unveils American Gift

A new stained-glass window, an American gift, now casts a multicolored glow along the walls of Chartres Cathedral where the chief glories of the old French glaziers' art have been enshrined for more than seven centuries.

Linking past with present, United States architects made the donation to honor craftsmen of the Middle Ages whose names are hidden in the mists of history. A master glass worker of the town of Chartres was commissioned to piece together the gemlike parts on the east wall of the south transept.

Leading Example of Art—Architects regard Chartres as one of man's noblest monuments. The severely simple lines of the south spire are cited as prime examples of 12th- and 13th-century building and sculpturing. In addition, authorities rate the cathedral's array of stained windows second to none, some contending the lancet window depicting the Tree of Jesse to be the finest of all glass work.

Henry Adams, the American critic, pointed to the windows as "the most splendid color decoration the world ever saw, since no other material, neither silk nor gold, and no opaque color laid on with a brush, can compare with translucent glass, and even the Ravenna mosaics or Chinese porcelains are darkness beside them."

Chartres counts its windows at more than 150. The tall, graceful rows along the nave and choir and the great roses of the front portals and transepts represent scenes from the lives of Christ, the Virgin, the prophets, and the saints. But they constitute as well a gallery of medieval characters, including tradesmen in their guild costumes. In all, there are almost 4,000 figures.

The subdued light, shifting continually with the sun, filters through thousands of minute glass fragments fire-hardened into subtle shades—blood and ruby reds, citron yellows and gold, somber brown, emerald and sapphire greens, and above all exquisite gradations of blue, purple, and violet. All are bound together in a bold tracery of lead framework fastened by iron crossbars.

Faith of the Crusades, Caught in Stone—Unlike so many of the oldest cathedrals, Chartres, dedicated entirely to the Virgin, shelters no tombs. It was built at a rapid pace—most of it in less than 100 years—in the age of untrammeled faith that launched the Crusades and the construction of cathedrals over western Europe.

Today Chartres stands in remarkably good condition on the plain of Beauce, "the granary of France," 55 miles southwest of Paris. The land for many miles is dominated by its two spires, the 750-year-old south spire towering 351 feet and the newer spire, not completed until the 16th century, rising 377 feet. Below them, the town's high-pitched roofs huddle close to the cathedral's buttressed sides.

References—Chartres may be located on the Society's map of Western Europe.

See "Cathedrals of England," *National Geographic Magazine*, Dec., 1939; "Cathedrals of the Old and New World," July, 1922 (both out of print; refer to your library).

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country where you can pick up Freud with a pack of cigarettes or James Joyce with a dozen eggs." Inexpensive books have 100,000 outlets and close scrutiny often uncovers solid literary kernels in a sea of chaff.

Then is all America reading? Unfortunately not. "I've had it," says too many a high-school or college graduate, denying himself lifelong rewards through selective reading. The American Library Association finds 404 counties and 27,000,000 Americans with no public-library service. Another 20,000,000 Americans are inadequately served by 61 per cent of the small public libraries, with annual budgets under $4,000.

But school libraries are growing fast. Reading clubs and book-discussion groups are on the march. The United States Armed Forces Institute has brought books and courses to more than 5,000,000 servicemen stationed at home and abroad.

Magazines, too, play their part in America's surge to the printed word. Total circulation of all magazines in the United States and Canada (170,000,000 copies per issue) nearly equals the combined population. Americans read nine times as many magazines as they did before World War I. National Geographic membership alone has increased by 66 per cent, or 800,000, since World War II.

Bookmobiles bump over back roads to isolated farms and serve crowded suburbs without neighborhood facilities. They open new horizons to bright-faced youngsters and grown-ups too. In Kentucky, citizens, corporations, local communities, and the State government pitched in to put 94 bookmobiles on the road to bring books regularly to the six out of ten Kentuckians who did not see a library book from year to year. They consider this Kentucky's biggest bargain of the century.

All over the land this autumn Book Fairs are focusing attention on National Book Week, November 14-20. Its slogan? "Let's Read!"

The World Rolls into Kentucky's Hills by Bookmobile—Bringing the mountain to Mohammed, this Madison County library on wheels, and others like it, has been replaced by a Statewide fleet of larger vehicles carrying 1,000 books apiece.

67 THOMAS V. MILLER, JR., COURIER-JOURNAL AND LOUISVILLE TIMES

BRAD ANDERSON, THE NEW YORK TIMES BOOK REVIEW

Let's Read, and Open Windows on the World

Leontine Meyers of New York City often reads in the dark. Raised dots brushing her moving fingers bring her words of the world's authors. "I've never had better friends than books," says this courageous woman whose sight fogged over when she was nine.

Reading inspires her to write. She punches out rough drafts in Braille with a stylus, then prepares final copy at her typewriter. Twice published, she eagerly learns more about writing through The Library for the Blind, a branch of the New York Public Library.

Leontine Meyers's "window on the world" is there for "sighted" Americans too. Libraries of the nation find shelf space not only for books but for the best magazines. The printed word conveys a treasure-trove of world knowledge. It preserves the wisdom of the ages.

Books are highways to adventure. Through them we conquer Everest with Hillary and Tenzing; we share Crusoe's aching loneliness, search out Moby Dick with Captain Ahab. We rollick with Dickens's characters; we meet friends from many lands, like Kim and Heidi. We commune with the world's great thinkers. Pages sing out the finest poetry.

There are books for every mood, for every need. Books tell how to build this, do that. They counsel, entertain, enlighten, enrich.

And they are so available. Exciting, informative volumes cram library and bookstore. The mails bring them from a growing number of book clubs. The phenomenal rise of the 25¢ and 35¢ "paperback" book inspired Bernard DeVoto's comment: "The United States has become a

the present machine, learning to equip her with new tools, new antennae to extend our senses into this dark, watery world. But always we shall be looking beyond to her eventual successor, the abyssal bathyscaphe that we shall some day launch and take down to the profoundest known deep."

Submarine Balloon—No less remarkable than its record-breaking dive is the revolutionary design of the *F. N. R. S. 3*. It operates essentially like an underwater balloon. A "gasbag" hull of thin sheet metal carries 20,000 gallons of lighter-than-water gasoline to give buoyancy below the surface just as a balloon uses lighter-than-air helium or hydrogen for buoyancy aloft. An opening in the bottom allows sea water to enter this thin-metal hull and thus equalize pressure inside and out.

Beneath the hull a 12½-ton cast-steel sphere serves as the underwater balloon's gondola, carrying men and instruments. The sphere has 3½-inch-thick walls designed to stand water pressure up to 19,000 pounds per square inch. Pressure at the 2½-mile depth reached in the Atlantic was about one-third this limit. Strong searchlights shining downward from the 53½-foot-long hull light the ocean-bottom scene in front of the main Plexiglas viewing port in the wall of the sphere. Through this port, still and motion pictures can be taken.

Just as in an airborne balloon, lead-shot ballast is released to slow descent or speed ascent. Lightweight gasoline is valved from the hull to speed descent or slow ascent. Exterior electric motors drive reversible propellers to provide one-knot speed on the ocean floor.

Taking turns at the viewing port, Houot and Willm saw beautiful colonies of sea anemones swaying like tulips of crystal on the deep Atlantic floor. They also saw a 6½-foot shark with great protruding eyes. It swam lazily into the path of their droplight.

"It would be odd to parachute aimlessly into mid-Sahara and land beside a lion," Houot observes. "But each time we have visited the bottom wastes in the bathyscaphe we have seen at least one shark. Unless our luck has been phenomenal, this must mean there are thousands of them living in the world's dark basement."

Though he descended with Willm nearly a mile deeper than the record set in 1953 by Auguste Piccard in the *Trieste*, Houot calls the record incidental. "The true purpose was to prove that *F.N.R.S.3* could attain the depths she was designed to reach and explore."

Edgerton Provides the Flash—Mounted on the outside of the cast-steel sphere was a new "3-mile" electronic flash unit. It was built by Harold E. Edgerton, professor of electrical engineering at Massachusetts Institute of Technology and inventor of the stroboscopic speed light. The "3-mile" refers to its ability to withstand the terrific water pressure at that depth.

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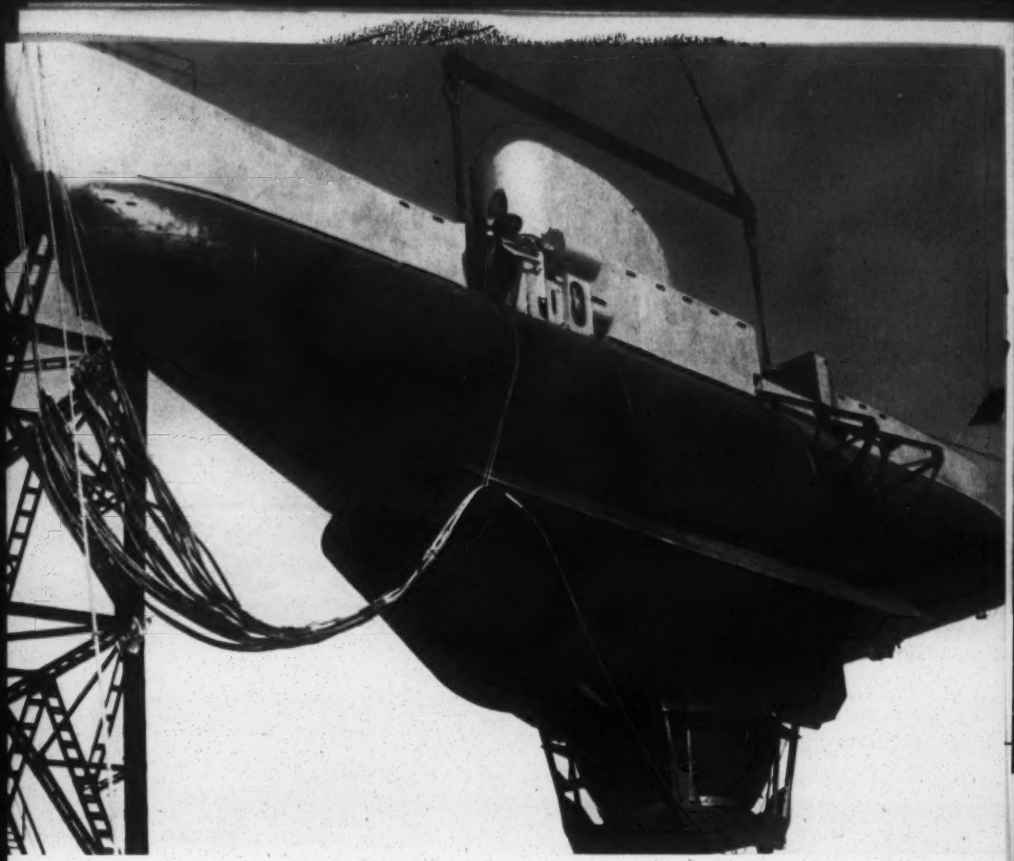

FRENCH NAVY, OFFICIAL

Dirigible of the Depths—Smallest vessel in the French Navy, the bathyscaphe fulfilled the promise of its name (from the Greek meaning "deep boat") by diving early this year to a record-breaking 2½-mile depth.

Ocean's Deepest Deep Beckons French Divers

The strongest lure the future holds for Lieutenant Commander Georges S. Houot and Lieutenant Henri Willm is a visit to the deepest point in the world's oceans.

The two French Navy engineers made a record-breaking bathyscaphe descent of 13,287 feet (2½ miles) in the Atlantic Ocean southwest of Dakar, French West Africa, early this year. Not satisfied with that, they hope eventually to plummet to the floor of the Pacific at 35,640-foot Challenger Depth between the Caroline Islands and Guam. No deeper ocean bottom is known.

Commander Houot, writing in the July, 1954, issue of *The National Geographic Magazine*, makes it clear that he and his deep-diving companion expect to blaze new downward trails. They need no better reason for their determination to reach the Challenger Depth than the classic one that impelled England's Mallory in his repeated attempts to climb Everest—"because it is there." Writing of the French Navy's bathyscaphe *F.N.R.S. 3* in which they set the present record, Houot says:

"Prompted by the scientists, we shall continue to modify and improve

Planes Help New Zealand's Development

In rugged New Zealand, where sheep outnumber human residents 17½ to one, the airplane is rapidly becoming an important farm implement. Hovering over uneven pasturelands and precipitous hillsides, planes dust the worn and gnawed-off grass with thousands of tons of fertilizer.

This does not end the work done by the plane for the island Dominion "down under" the Equator in the far Pacific. Regular flights have turned an isolated paradise of some of the world's most varied and spectacular scenery into an accessible and popular tourist stamping ground.

Geysers on Golf Links—Travelers from all over the globe now fly down to this "pocket wonder world" where spouting geysers sprinkle the fairways of a golf course, Maori housewives cook meals and launder clothes in boiling springs, giant ferns wave feathery fronds in semitropical forests within sight of snow-capped mountain peaks, deep fjords gash rocky coasts, and North is warmer than South.

New Zealand lies almost exactly at the opposite side of the world from the British Isles. When it is midnight in London the noonday sun is blazing on the streets of Wellington, New Zealand's capital. But although half a world away, New Zealand bears a strong British stamp. Its speech, architecture, gardens, its way of life remind the visitor that pioneers from Britain settled New Zealand a century ago. The tie is still so strong that many New Zealanders who have never seen the land of their forebears refer to it as home.

The Maoris, who preceded the British by some five centuries, add a Polynesian touch to the Dominion's life. But they are adapting themselves to the ways of the white man, abandoning customs brought from small islands to the north when they paddled down in their canoes so long ago. On such occasions as centennial celebrations and entertainments in honor of visiting celebrities, they don traditional costumes of their ancestors and perform age-old dances.

The majority of Maoris live on North Island, in the vicinity of Lake Rotorua in the fabulous thermal springs region. Ohinemutu, their settlement on the lake shore, is a mecca for visitors who are charmed by exquisite wood carvings and beautiful woven reed panels that adorn the village meetinghouse. They watch Maori dances and ancient pageantry (illustration, cover) against the backdrop of springs and geysers.

Britain's Larder—Moderate climate and adequate rainfall have combined with science to make New Zealand the world's biggest exporter of dairy products. The islands, often called "Britain's larder," ship three quarters of their wool, butter, cheese, meat, and hides to the British Isles.

But the import list is steadily decreasing. The Dominion's industries have developed to keep pace with its increasing population and widening world interests. New Zealand now produces automobile tires, wallboard, furniture, textiles, and electrical appliances ranging from light bulbs to refrigerators. Coal mines supply local needs with the help of some imports. Hydroelectric power is being developed along the swift, short rivers to supplement coal and substitute for almost non-existent oil.

Machines take the place of hired hands on New Zealand farms. This

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Dr. Edgerton's work was financed by the National Geographic Society, which thus kept alive its interest in and sponsorship of oceanic exploration beginning 20 years ago with Dr. William Beebe's bathysphere descent off Bermuda. Today Edgerton's lights are piercing the curtain of dark that so long hampered underwater research. He spent the summers of 1953 and 1954 custom-building special cameras and photo-lighting apparatus to the needs of the several projects of the National Geographic Society-*Calypso* Oceanographic expeditions. In 1953 his 15-year-old son Bob aided him on the job, while in 1954 it was older brother Bill's turn to help Dad.

Though scores of research projects had been proposed by French and Belgian scientists for the *F.N.R.S.3* after its 2½-mile plunge, it was assigned for most of last August to *Calypso* expeditions director Captain Jacques-Yves Cousteau and his scientists for Mediterranean-bottom photography using Edgerton-built equipment.

References—"Two and a Half Miles Down" and "To the Depths of the Sea by Bathyscaphe," *National Geographic Magazine*, July, 1954; "Fish Men Discover a 2,200-year-old Greek Ship," Jan., 1954; "Fish Men Explore a New World Undersea," Oct., 1952; Dr. Edgerton's pioneering speed-light photography is described in "Circus Action in Color," March, 1948, and "Hummingbirds in Action," Aug., 1947; see also GEOGRAPHIC SCHOOL BULLETINS, March 23, 1953, "Aqualungers Find Ship Sunk 22 Centuries."

The Aqualunger in Shallow Waters and the Bathyscaphe in the Depths Have Before Them 70 Per Cent of the World's Surface to Explore

FRENCH NAVY, OFFICIAL

HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

An Islander Admires Her Native Landscape—A young New Zealand hiker pauses for refreshment in the shadow of Mt. Cook—13,349-foot monarch of the islands' ranges.

explains why, in a predominantly agricultural country, more people work in factories than on farms, and why nearly two thirds of the 2,000,000 population lives in cities and towns.

Some gold, silver, and iron is mined. One fifth of the land is forested. Use of Kauri, the giant pine of the islands, is now restricted. New forests have been set out which include fast-growing trees from other countries. The Kaiangaroa State Forest of 284,000 acres in the Rotorua region is the largest man-made forest in the world.

Now that the air age has made New Zealand the next-door neighbor of all the world, the islands Captain Cook claimed for England two centuries ago are no longer a quiet replica of rural Victorian England in a South Sea setting, nor a Maori outpost of Polynesia, but an up-and-coming member of the British Commonwealth of Nations.

References—New Zealand appears on the Society's map of the Pacific Ocean.

See "New Zealand, Pocket Wonder World," *National Geographic Magazine*, April, 1952; "Finding an 'Extinct' New Zealand Bird," March, 1952; "The British Commonwealth of Nations," April, 1943; "New Zealand 'Down Under'," February, 1936; and GEOGRAPHIC SCHOOL BULLETINS, Dec. 14, 1953, "Royal Travelers Visit New Zealand."